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Attorney Docket: 042390P7708

REMARKS

Objections to the Drawings have been overcome with corrections filed in the previous amendment. Objections to the Specification have been overcome with corrections filed in the previous amendment. Objections to the Claims have been overcome with amendments to the Claims filed in the previous amendment. Rejections under 35 U.S.C. § 112, second paragraph have been overcome with the Amendment filed 21 April 2003.

Reconsideration of the above referenced application in view of the enclosed amendment and remarks is requested. Existing claims 1-3, 5-17, 19-31 and 33-42 remain in the application. Claims 43-58 have been added.

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ARGUMENT

Claims 1, 5 and 7-17, 19-31 and 33-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 5,579,447 to Salgado (hereafter, "the '447 patent"). Claims 2-3 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '447 patent in view of U.S. Pat. No. 6,467,054 to Lenny (hereafter, "the '054 patent"). These rejections are respectfully traversed, and claims 1-3, 5-17, 19-31 and 33-58 are believed allowable as amended based on the foregoing amendments and the following discussion.

Patent '447 teaches a "job manager", but fails to teach a scheduling driver, as recited in Applicants' claimed invention. This is more than mere semantics. According to the '447 Patent, the job manager provides the capability required to obtain an estimated time to complete (ETC) for each job. The job manager as taught by the '447 patent comprises a process capable of calculating ETCs for each page. The job manager is also responsible for maintaining a job database. Images are stored in memory and corresponding image identifiers are stored in the database. The image identifiers are used during printing to retrieve selected stored images. The database is employed to store page and job ETCs. The job manager, as taught by the '447 patent does not teach or suggest any method of scheduling jobs. As with most printers, scheduling is typically a FIFO queue, and no complex scheduling takes place. Scheduling of print jobs is inherent to a print engine, but is not taught by the '447 patent, nor suggested in context of I/O requests to devices.

The Examiner cites col. 13, lines 58-59, col. 14, lines 27-31 as basis for the '447 patent teaching the functionality of Applicants' scheduling driver. There is no basis for this assertion. The '447 patent teaches redisplaying the job ETC based on selected events, i.e., the Job ETC is displayed automatically after the ETC database is updated in view of consulting the image processing/video services. Also, in some cases, a user may wish to have the current Job ETC displayed periodically. In this event an update timer can be activated so that a secondary loop causes the current Job ETC to be displayed periodically. The '447

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patent does not teach scheduling or rescheduling of the jobs based on the ETC or any other parameter. Nor does the '447 patent teach selecting jobs to be performed, but merely teaches the display of ETC's for those jobs already running or in the print queue.

Further, the '447 patent does not teach programming of the jobs to be performed. The programming referred to by the Examiner and cited at col. 13, lines 58-59 and col. 14, lines 27-31 does not relate to programming the order of the print job, and certainly does not teach scheduling of I/O requests. The '447 patent teaches that "print related attributes" affecting the time required to print the job are selectively programmed, typically based on the printer hardware and possibly network related criteria. These attributes are used to determine the ETC only, and do not relate to scheduling the print jobs. Moreover, the '447 patent is limited to a discussion of print queues and time to print. Applicants' invention refers to I/O requests to any generic device, not merely to print devices.

In addition, Applicants' claimed invention requires "calling a scheduling driver to start an Input/Output (I/O) request to a device." The '447 patent neither teaches nor suggests sending I/O requests to the printer or any other device by a scheduling driver. The '447 patent retrieves information from a database in order to provide information to the user. Applicants' claimed invention requires a scheduling driver as described in the Specification as originally filed. Specifically, an application calls the scheduling driver to start an Input/Output (I/O) request to a device. The scheduling driver determines if the device is busy. If the device is not busy, the scheduling driver initiates the I/O request to the device and provides an estimated processing time (EPT) for the I/O request to be completed to the application. The '447 patent does not initiate I/O requests, but merely provides an estimated time to complete for existing jobs. Applicants' claimed invention determines if the I/O request has not been completed, and if so, the scheduling driver calculates an estimated processing time remaining (EPTR) for the I/O request to be completed and provides the EPTR to the application. The application then sleeps for the estimated processing time remaining (EPTR) and again calls the scheduling driver to obtain the I/O operation results.

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The '447 patent does not teach an application sleep interval. While it is true that when a print job is waiting to print, it is idle, this is not a sleep interval. Further, if idle, the print job starts at an actual time when the printer is not busy. Applicants' claimed invention sleeps only for the *estimated* time interval, which does not guarantee that the device is free when it awakes. Further, the "application" taught by the '447 patent is the ETC display interface. The ETC of the jobs is either updated based on an event (i.e., the database changing ETC's) or periodically. The only application taught by the '447 patent, thus, does not sleep for a time interval related to EPTR.

Thus, as outlined here and in previous responses and amendments, Applicants respectfully submit that there is no teaching or suggestion in the '447 patent to render obvious Applicants' embodiments of the invention in independent claims 1, 15 and 29 related to: **calling a scheduling driver to start an Input/Output (I/O) request to a device for an application, the device being one of a plurality of different types of devices useable by an application...determining if the device is busy... if the device is not busy, then providing an estimated processing time (EPT) for the I/O request to be completed for the application, wherein the application sleeps for the estimated processing time.**

Accordingly, Applicants respectfully submit that Applicants' amended independent claims 1, 15, and 29 are not rendered obvious by the '447 patent, either alone or in combination with the '054 patent. Thus, Applicants respectfully request that the rejection of amended claims 1, 15 and 29 be withdrawn. Further, the dependent claims are allowable for being dependent upon allowable base claims.

With respect to claims 2, 3 and 6. The Examiner cites the '054 patent as teaching busy flags. Flag constructs are well known in the art. However, implementation of a flag as recited in Applicants' claimed invention, and use of the flag thereof by a scheduling driver is not taught or suggested by the prior art. The '054 patent teaches that a diagnostic application sets a flag to indicate that the device to be tested is busy. This is done so that the host CPU will not disrupt the testing activities. At no time does the '054 patent teach or suggest that a busy flag could be combined with a scheduling driver in order to schedule I/O requests.


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CONCLUSION

In view of the foregoing, claims 1-3, 5-17, 19-31 and 33-58 are all in condition for allowance. If the Examiner has any questions, the Examiner is invited to contact the undersigned at (703) 633-6845. Early issuance of Notice of Allowance is respectfully requested.

Respectfully submitted,

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